New Nouveau
Brunswick

GUIDELINES
for
ELECTRONIC
RECORDKEEPING

Records
Management
Series

Supply and Services
Provincial Archives of New Brunswick
Government Records Section

106-06682/

Crown Copyright Reserved 1997
Provincial Archives of New Brunswick
ISBN 1-55137-825-6

Records Management Services to Government

The Government Records Section of the Provincial Archives of New Brunswick offers a number of services to government departments and agencies. Among these are assistance in the efficient management of records and information.

Under provincial legislation, the Provincial Archives sets standards for records management policies and procedures which apply to all records, in any form, which are created or received in the administration of public business. The goal of the Archives' records management program is to ensure that government records are properly maintained during their period of active use in departments and agencies, that they are stored safely and economically during semi-active use, and that permanently valuable documents are regularly transferred to Archives.

Records management staff are available to advise and assist departments in controlling their records through the development of file classification plans, the preparation of retention schedules, and the application of technology, e.g. records management software, imaging, and micrographics. They furnish training for records personnel through consultation, workshops, and courses in records management. For general information on records management, call 453-2897, and ask to speak to the analyst assigned to your department or agency.

The Archives' Records Centre provides semi-active storage and retrieval services for all government departments and agencies. Records stored there remain the property of the transferring body, which may obtain access to its information by fax, telephone, written request, or personal visit. To request transfer of records from your office to the Records Centre, or to recall a file from the Centre, call 453-2897.

Publications which offer help with records management include:

Classification Plan and Retention Schedules for Administrative Records (CPRS)
Model for a Departmental Policy and Procedures Manual
Using Records Centre Services
Guidelines for Departmental Record Management Programs
E-Mail Guidelines

<u>Available Soon</u>
Computer Assisted Records Management Checklist
Managing Files and Directories on the LAN

Acknowledgment

This document was originally released by the National Archives and Records Administration (NARA) of the United States Federal government under the title *Requirements for Electronic Recordkeeping in the Office Environment*. The Provincial Archives of New Brunswick as adopted it as the standard requirements for the Government of New Brunswick. The only changes that have been made to the original document are those required to reflect the terminology and policies of the Government of New Brunswick.

Introduction ***6***

Records Creation ***8***
Record Status *8*
Record Identification Information *8*
Attachments *9*
Nonrecord Materials *9*
System Design Requirements for Records Creation *9*

Records Maintenance ***10***
Search Capability *10*
System Security *11*
Integrity of Records *11*
Backups *11*
System Design Requirements for Records Maintenance *12*

Records Disposition ***12***
Disposition Instructions *12*
Disposal Clearances *13*
Deletion of Records *13*
System Design Requirements for Records Disposition *13*
System Documentation *14*
Migration of Data *14*

Appendix A - Definitions ***16***

Introduction

The extensive use of automation to conduct Government operations has resulted in the proliferation of electronic information systems that create and maintain public records.[1] Currently such electronic information systems[2] do not provide full records management functionality, and consequently they are not recordkeeping systems that are suitable for the storage of public records. Only electronic information systems that provide proper controls over the creation or acquisition of records, maintenance of records in context with the function or activity performed, and execution of the disposition instructions in approved schedules, are electronic recordkeeping systems[3].

This guide describes the records management functions that are required for electronic recordkeeping systems in government departments and agencies. These functional requirements or system design elements have been developed to explain how to incorporate records management into office automation systems. These design requirements for incorporating recordkeeping into electronic information systems are focused on the office automation environment. Appendix A contains a glossary of terms specific to this guide.

This guide provides threshold requirements. When automating office processes, departments may need to specify more detailed requirements based on their actual functions and processes.

At an earlier stage of office automation, computer equipment was used only to facilitate production of paper records. Correspondence, reports, forms and other records commonly produced by Government offices were printed, distributed, and filed, usually by support personnel. Currently, the majority of Government departments continue to maintain "official" files in paper form because they lack automated systems for the management of electronic office files. However, as more office personnel, including professional and technical staff, use networked computers, production of more and more records has become decentralized.

Each individual on a network exercises control over documents, such as electronic mail, that must be assessed for record status. Unless some deliberate action is taken, the documents that are records will not be properly maintained. In many instances, the end-user is responsible for determining which documents are records and for ensuring that the records are maintained in a recordkeeping system - an office file or electronic recordkeeping system - so they will be available to other staff. Records also need to be maintained in an office recordkeeping file or system so that established records management controls, including disposition, can be exercised.

[1]The **Records Management Policy** (AD-1508) defines records and recorded information as "correspondence, memoranda, forms and other papers and books; maps, plans and charts; photographs, prints and drawings; motion picture films, video tapes; sound recordings, magnetic tapes, optical disks, microfilm and electronic images, *electronic and all machine readable records*, information derived from records in electronic and machine readable form; and all other documentary materials regardless of physical form or characteristics."

[2] A system that contains and provides access to computerized public records and other information.

[3]An electronic system in which records are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposition.

Implementation of automation systems without records management functionality is likely to result in incomplete or highly decentralized files, a situation that hampers staff access to information that might be needed to conduct business, respond to requests for information, or provide documentary evidence needed for litigation.

Office automation applications are becoming more and more sophisticated, providing greater flexibility and ease of use. Offices using document management, groupware, and other complex applications may desire and even expect those computer programs to adequately manage the records produced using those programs. However, few, if any, off-the-shelf office automation products currently provide full records management capability, i.e., automated controls or capabilities for managing the life cycle of records from creation to maintenance and access to disposition. Many office automation programs include some records management functionality. Some meet records creation and maintenance needs, to one degree or another. They may provide for identification of the record, classification or categorization of individual records, indexing or other tools for retrieval, and/or shared access. However, many office automation applications were not designed to meet full records creation and maintenance needs, and they typically fail to address the final phase of the life cycle of records - disposition.

Departments must determine if and when they will convert to electronic recordkeeping. The automation of office processes must be based on mission requirements and the functional processes that produce records. Prior to designing or implementing such a system, the agency should conduct an information flow and process flow analysis to determine if improvements or changes in processing of information is needed.

In addition to ensuring incorporation of records management functionality into automated systems, departments should decide whether to convert existing public records into an electronic format compatible with the system. When an agency decides not to incorporate existing records into the automated system, it should ensure that the automated system includes a pointer or index to the paper records. In addition, initial planning for the system and system design should take into account the inevitable necessity of migrating all records not eligible for disposal as the system is upgraded or replaced. Taking these steps will ensure that the system users have full access to all records and will preserve the context and integrity of the documentation.

Adoption of the principles and functional requirements described in this guide into the design of electronic information systems, along with implementation of proper procedures for use of the systems, adequate instruction and training, and regular system management will safeguard public records during their authorized retention period and make them available to appropriate staff. These requirements also address the need to destroy records promptly at the expiration of their retention period or transfer permanent records to the Provincial Archives as specified in approved records schedules.

These functional requirements reflect traditional records management theory and Provincial Archives regulations in that they mirror the life cycle of records - creation, maintenance, and disposition. To meet recordkeeping requirements, electronic recordkeeping systems must be designed to control or allow the user or system manager to control the creation, identification,

storage, accessibility, retrievability, integrity, security, and disposition of the records in the system. In addition to supporting agency activities, proper system design and implementation will also contribute to the authenticity of the records and their usefulness as evidence of government operations.

1. Records Creation

At the beginning of the life cycle, records are created or received. Electronic recordkeeping systems must allow users to indicate when a record has been created, i.e., when a record is considered final, signed, or otherwise in a form that should not be changed. Departments maintaining office files in electronic recordkeeping systems have to provide thorough training to all staff using those systems, so that individuals will be able to make the proper determination of record status.

1.1 Record Status

Public records are defined as documentary materials, regardless of physical form, created or received during the course of government business, and kept to document government organization, policies, and activities or because they contain information of value to the department. Extra copies of records maintained for convenience of reference, drafts and working files that are not needed to document government functions, and printed or published materials apart from a record set are non-record materials that are not subject to Provincial Archives regulations. In certain instances, however, drafts may be records. Drafts or other documents proposing important policies or decisions may be needed for complete and accurate documentation, especially if they are circulated to senior staff. The department should provide criteria for system designers and users so that accurate decisions are made about the record status of documents. In some instances, the system may be designed to automatically freeze documents at a certain stage of processing without user action. In other cases, users will have to be trained to know when documents are public records that must be maintained in an unaltered state.

Many records that belong in public recordkeeping systems are received in paper form from other offices within the department, from other departments, or from businesses or members of the public. In a fully automated environment these documents will have to be scanned or otherwise converted to an electronic form compatible with records generated electronically within the system. Records received in electronic form will have to be compatible with the electronic recordkeeping system, or they will have to be converted to an acceptable electronic format.

1.2 Record Identification Information

Whether the records are created within the electronic recordkeeping system or are converted to a form acceptable by the system, certain information about the records will have to be recorded and retained within the system. During system design it is critical that the record identification information (metadata) is specifically defined. In addition to assigning a unique identifier for each record in the system, the system should be required to record the name of record creator or source of records received; the data and time of creation and/or receipt; and indexing information such as subject or thesaurus terms and file classification designation. The data elements should

be compiled into a data dictionary that defines the information to be entered into each data element and specifies the length, format, access control, and other information needed by systems administrators and others involved in maintaining and upgrading the system.

The system should then be designed to verify that data entry conforms with the specified format of the data elements and to prevent duplicate record identifiers. The validation routine must be constructed to ensure that errors are prevented, because, as discussed below, the records in the system should be unalterable. In office automation applications that involve several users in the development of final records, the department may wish to have the system designed to permit data entry in specified fields only by authorized users.

1.3 Attachments

Another important element that must be included in electronic recordkeeping systems is the ability for users to identify and link supporting and related record information such as notes, marginalia, attachments, and electronic mail receipts with the relevant document. Attachments and related records in varying formats may be recorded or transmitted after a document has been designated a public record. It is essential, therefore, that these be linked to the related record. Without these links, electronic documentation may not provide an accurate and complete record of department activities.

1.4 Nonrecord Materials

Not all electronic documents are public records. Many office automation systems will include preliminary and informal documents and reference materials created or used by department staff. Such systems should allow users to designate certain types of informal documents that they create or receive electronically as nonrecord. In addition, the system should provide a personal work space for each user so that users will be able to create and/or retain control over notes, works-in-progress, nonrecord electronic mail messages, and reference materials. Electronic documents that are nonrecord materials should be maintained apart from the recordkeeping system.

1.5 System Design Requirements for Records Creation

As explained in this section, a public electronic recordkeeping system must have the following system design elements for records creation.

The user interface of the system will:

1. Enable the user to identify when the electronic document is a public record. On-line helps or prompts should be used to simplify the records status determination and assign a records disposition category.
2. Provide the user with a personal work space to create or receive information and maintain drafts, notes, and other nonrecord material, including information received in electronic form.
3. Enable the user to identify and link supporting and related record information such as notes, marginalia, attachments and electronic mail return receipts. This may include

records stored in various native software formats, at multiple physical locations, and on diverse storage media.

4. Allow the department to define the standard data elements and to designate the thesaurus to be used for each, as appropriate.
5. Enable the user to determine and assign a file classification.

The automated system will:

1. Identify information as a public record, then prevent subsequent changes. To preserve the record's integrity, changes or revisions will be treated as a new record and receive different identification data.
2. Link the record identification data (metadata) to the record so that it can be displayed when needed, and actually transported with the record when a copy is made and transmitted to another location(s).
3. Include on electronic mail messages, the name of the sender, intelligent representation of all the addressees, and the date/time of transmission. Allow users to specify when a return receipt is a record which will be linked to the outgoing message.
4. Automatically date the document when it is saved as a record. This date must remain constant, without being changed when accessed, read, copied or transferred.
5. Assign or capture metadata for complete record identification during the creation phase.
6. Conduct logic checks for metadata to ensure consistency and assist with error checking. For example, duplicate document identification numbers will not be allowed and dates will be accepted in one format.

2. Records Maintenance

2.1 Search Capability

The first and second parts of the life cycle of records are often interrelated. Many of the actions taken to ensure proper creation of electronic records also relate to the maintenance and use of records. For example, the requirement that the system or users designate index terms or assign file classifications is directly related to later use.

For accurate and efficient access to information in the records it is important that, in addition to full text search, the electronic recordkeeping systems provide for flexible and compound searching. Full text search alone is likely to produce many irrelevant results, and at the same time full text search will fail to find relevant information in records that do not include the actual search term(s). Consequently, as stated above, the department should specify which data elements are to be indexed, and, when appropriate, should include a thesaurus or other specified format instructions for designated data elements. To ensure user access to all information, the electronic recordkeeping system should keep track of on-line storage capacity and through indexing allow users to locate records on near-line and off-line storage.

The department should also define the format and structure of output reports, when appropriate, to prevent the need for users to construct complex queries. The system should be designed to produce such reports on request or automatically at specified intervals, as determined by the department. For instance, users may want to be able to view all records approved by a certain official within a certain date range. Standardized queries with options filled in by users would improve access to the information in the system. These reports should be designed in conjunction with the determination of which data elements to index, and how information is to be formatted in those data elements. Another specific requirement for output is the ability to produce permanent records in a format acceptable by the Provincial Archives at the transfer date specified in the records schedule.

Other access requirements include the need for simultaneous access by multiple users and audit capability to track each access to individual records.

2.2 System Security

System security is another aspect of proper records maintenance. The electronic recordkeeping system must be designed to permit the department to control the level of access to records. Normally, this would be done on collections of records commensurate with records series in paper records. However, the department may determine to control access at the individual document or data element level when appropriate. The system should be designed to prevent unauthorized personnel from gaining access to the system for data entry or information retrieval.

2.3 Integrity of Records

Maintaining integrity of public records is also a key requirement that must be addressed in system design. Once a document is designated as a public record, as defined by the department and implemented during records creation, the system must prevent any alteration of the record. Any changes that are made to public records in the system should be recorded only as new records. All records emanating from previous records should be linked so that a request for one can produce all versions. As noted above, in certain instances drafts may be designated as records. Consequently, multiple versions of the same document may reside as records on the system. The system should visually distinguish the final version from a working version, so that users know immediately if they are viewing a draft or approved document. This distinction should also appear in any list of "hits" in response to a query.

2.4 Backups

Creation of backups that can be used to produce exact duplicates of all records in the system, including metadata and linkages, is a definitive requirement because of the fragility of electronic media. The department should determine how frequently backups need to be run to ensure the availability of the information in the system. To minimize the backup tape storage and maintenance operation, departments should recycle backup tapes promptly.

2.5 System Design Requirements for Records Maintenance

As explained in this section, a public electronic recordkeeping system must have the following system design elements for records maintenance.

The user interface of the system will:

1. Enable the department to determine and control the level of access to the recordkeeping system for the authorized system users. Provide access authorization to the individual record level.
2. Provide a logical retrieval capability that allows for individual word or phrase searches.

The automated system will:

1. Store public electronic records to ensure the file integrity, prevent change, and safeguard against premature destruction. The record should be stored in native format; however, if the content of the record is preserved, a generic file for text material (ASCII) may be used.
2. Produce an output format for permanent records in compliance with specifications identified by the Provincial Archives.
3. Provide an audit capability to track each access to individual records by user account.
4. Provide visual distinction between the final version of a record from a working version, both when viewing a document and on the list of documents produced in response to a query.
5. Support multiple user access.
6. Monitor on-line storage capacity and provide an index to near-line and off-line storage.
7. Provide the capability, as determined by the department, to automatically create backup copies of the records as well as their metadata.

3. Records Disposition

The final phase of the life cycle of records is disposition. At the end of public electronic records scheduled life span, they must be deleted or transferred to the Provincial Archives in accordance with the disposition instructions in approved records schedules.

3.1 Disposition Instructions

To comply with public records disposition requirements, electronic recordkeeping systems should be designed to enable the department to incorporate approved disposition instructions, usually linked to the file classification or other record identifier, so that the system can compute when records are to be moved off-line, deleted, or transferred to the Provincial Archives. Intermediate disposition actions may also be taken when appropriate. Electronic records that are no longer needed for current business may be stored off-line to maintain an acceptable level of on-line system performance.

3.2 Disposal Clearances

At appropriate intervals prior to taking disposition action, the system should produce a report or permit an authorized staff member to request a report listing the disposition status of records. The system should also provide separate listings of records eligible for deletion, retirement to off-site storage, and transfer to the Provincial Archives.

Disposition action should not be executed automatically, however. The system should be designed to ensure that an authorized official, such as the records manager, has approved the action before it is taken. Because disposition instructions may be changed or suspended, the system should be designed to allow designated staff to assign and change disposition instructions. The system should also be designed to permit global updates reflecting changes in retention period from revised schedules. This will ensure that the most current disposition instructions are in effect, and that records for which disposition action has been suspended due to litigation, investigation, or other unusual administrative need will be available until that need has ended. Similarly, the system should indicate when records are unscheduled, i.e., no disposition has been authorized in approved schedules.

In addition, the system should retain an audit trail indicating disposition status and produce reports, on request, listing records for which disposition has been suspended, those that have been moved off-line, those that have been destroyed, and those that have been transferred to the Provincial Archives.

3.3 Deletion of Records

In executing deletion of public records, the electronic recordkeeping system should destroy the record itself, not just remove the index or address information.

3.4 System Design Requirements for Records Disposition

As explained in this section, an electronic recordkeeping system must have the following system design elements for records disposition.

The user interface of the system will:

1. Enable the department to provide rules and guidelines to be used by the system for records disposition.
2. Require an authorized individual to validate record destruction.
3. The system will identify records that have reached their end of scheduled life; however, it will not automatically destroy material.
4. Allow the records manager to review disposition determinations.
5. Enable designated individuals to assign and change record disposition. For example, implement changes in rules or overriding scheduled destruction of records that must be retained beyond their normal life span because of litigation, audit, investigation, or other unusual administrative need.
6. Allow the identification of unscheduled records (those with no approved disposition).

The automated system will:

1. Provide for total destruction of the record and not just remove the automated index or address information.
2. Reschedule records already in the system when disposition instructions change from the original designations
3. Provide an audit trail for deleted records. The system would create the transaction listing when the records are transferred, on hold or destroyed.

3.5 System Documentation

All of the system design requirements described above contribute to the overall goal of proper electronic records management; providing accessible and readable electronic records during their entire scheduled life span.

As important as system design requirements are to meeting the goal of records maintenance, two other kinds of requirements must also be satisfied to ensure that records remain available. Adequate system documentation must be maintained, and changes made to the system or adoption of a new system must take into account the necessity of converting existing information for continued use.

The quality of system documentation for an electronic recordkeeping system is a key factor in the efficient operation of the system and the ability to maintain the integrity and authenticity of the records for their entire life span. System documentation should include a description of the relevant department program, the functions the system performs, the sources of the data in the system, logical and physical design, data element definitions and record layouts, code books for all codes used in the records, reports generated automatically by the system and methodology for generating special reports. System documentation should also identify when and how data become records. Finally, system documentation that is stored in electronic form should be exportable using a transportable format, i.e. a format that is not hardware and software specific.

3.6 Migration of Data

In addition to ensuring that office automation systems meet recordkeeping requirements, departments must also migrate data not eligible for deletion whenever they install system upgrades or convert to new systems. Electronic systems are not static. Inevitably departments will purchase or develop software enhancements or new systems. A critical aspect of implementing these changes is migration of the records to the new version or the new system. This must be done in every instance. Just because the new version can still "read" the previous version, there is no guarantee that a subsequent update will be able to read records produced with software two or more generations removed. Many Government records must be kept for many years, so if they are not migrated in every instance an department may find that it has records that it must preserve but is unable to read.

Departments are cautioned not to assume that over the course of three years or five years or ten years - whatever the projected interval between system upgrades - all records will be accessed

and automatically converted. Most records become fairly inactive in a short period of time. However, individual records may be needed many years after they were created. Failure to ensure that all electronic records can be read puts the department at risk. Loss of documentation can render the department unable to protect Government rights or to breach a basic public trust: protection of the rights of individuals affected by Government action.

Appendix A - Definitions

Document
(1) Recorded information regardless of physical form or characteristics. Often used interchangeably with record. (2) An individual record or an item of nonrecord materials or of personal papers.

Documentary materials
A collective term for records and nonrecord materials that refers to all media on which information is recorded, regardless of the nature of the medium or the method or circumstances of recording.

Metadata
Data about data, that is, data describing the structure, data elements, interrelationships, and other characteristics of electronic records.

Recordkeeping requirements
All statements in statutes, regulations, and department directives or authoritative issuances, providing general and specific guidance for departmental personnel on particular records to be created and maintained by the department.

Recordkeeping System
A manual or automated system in which records are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposition.

Record
The **Records Management Policy** (AD-1508) defines records and recorded information as "correspondence, memoranda, forms and other papers and books; maps, plans and charts; photographs, prints and drawings; motion picture films, video tapes; sound recordings, magnetic tapes, optical disks, microfilm and electronic images, *electronic and all machine readable records*, information derived from records in electronic and machine readable form; and all other documentary materials regardless of physical form or characteristics."

Library or museum material made or acquired and preserved solely for reference or exhibition purposes, extra copies of documents preserved only for convenience of reference, and stocks of publications and of processed documents are not included.

User/End-User
(1) An end-user of a product is the person ultimately intended to use it, as opposed to people involved in developing or marketing it. (2) The person who uses the results of a computer program. (3) (Also called clients) People who use an information system or the information it produces.

Version

A variant of the original value of an object. (1) In terms of records successive copies of an original documents to which changes have been made. (2) In terms of software programs, successive releases usually providing enhancements and improvements over the previous release or version.